



SAFETY, SECURITY, AND REAR AREA PROTECTION

Section I

SAFETY

General

All personnel who receive, store, issue, and use petroleum products must take safety into consideration. Operators and supervisors at all echelons must be constantly alert, avoid violations of established safety practices, and become familiar with prescribed safety precautions and practices. FM 10-69 discusses safety principles and practices.

Toxic Chemical Agents

- Personnel working in petroleum operations in the theater of operations may be forced to function for extended periods of time in a toxic environment. This will force the unit commander to adopt an appropriate mission-oriented protective posture (MOPP) for the unit based on the nature of the threat and mission requirements. The commander must consider a number of points:

- The mission responsibilities in relation to operations in an NBC environment.

- The handling/operations of bulk POL in storage, transfer, and transport at various MOPP levels, including requirements for collective protection.

- The degradation of units and individuals while performing service and maintenance at various MOPP levels.

- The NBC training status of the units and assigned individuals.

- The availability of NBC school-trained personnel.

- The requirement for large scale decontamination and the responsibility therein.

- The degradation effect of various MOPP levels on the individual soldier in relation to morale, discipline, fatigue, etc.

- The effect of various toxic chemical agents on exposed bulk POL products is not known. POL product contamination will be a direct result of:

- The degree of exposure of the POL product. (This will generally be limited considering the closed systems involved in handling, transfer, and storage.)

- The type of POL product concerned and the “volubility product” of the various toxic agents in specific POL product.

- The extent to which air-breathing pumps would contaminate the product in a toxic chemical environment.

- The ambient concentration of the toxic agent and the duration of that concentration.

- The extent to which air-breathing pumps or engines would intake chemical agents designed to disrupt pump mechanical operations, e.g., clog air filters, congeal pump fuel, thus requiring replacement.

- The commander must, in the face of the

possibility of contaminated POL, consider:

- The mechanism for identifying the contamination and the degree of hazard involved.
- Safe handling, transfer, and storage (if necessary) of such contaminated POL.
- The decontamination of equipment used for the handling, transfer, and storage of contaminated POL.
- The safe and rapid disposition of contaminated POL by either disposal or recovery procedures.
- The commander must further consider the possibility of the effects of toxic chemical agents on the handling, transfer, and storage equipment. There are no test results that would indicate the effects of toxic agents on collapsible bulk bladders, airdrop bladders, or collapsible pipe; however, the data on toxic agent effects on rubber are available and would tend to indicate the likelihood of adverse effects on such fuel systems as a function of degree of contamination. Detailed information concerning toxic effects of chemical agents on petroleum products and equipment will be included in all operational manuals when data become available. Current doctrine dictates for as rapid as possible decontamination of these systems to preclude excessive absorption and degeneration of the material. These fuel systems, when operational, are under a significant amount of pressure, and ruptures caused by degenerated material may lead to excessive losses of bulk POL products. Further, the pressures combined with an increase in the temperature gradient may release toxic agents, contingent on the amount of prior absorption.
- The commander must always consider his need for rapid and complete decontamination of all fuel handling transfer and storage equipment. He will consider:
 - Quantities of decontaminant available as opposed to possible needs.
 - Training level of unit personnel to perform NBC decontamination operations.
 - Decontamination expertise available to the unit (trained personnel).

- Supplemental decontamination support available to the unit.
- Mission requirements and operations during the decontamination process.
- Troop safety during decontamination and appropriate MOPP levels.
- Need for replacement of subassemblies that cannot be decontaminated.

Nuclear Weapons

The blast, heat, and nuclear radiation effects of nuclear weapons are all hazards to the petroleum supply system and petroleum products stocks.

- The chief hazard of nuclear weapons to petroleum supplies and facilities is the blast effect. Blast is most destructive to those supplies and facilities that are direct targets. Facilities such as underground pipelines and storage tanks are relatively safe from nuclear airbursts but are vulnerable to surface or subsurface bursts. Facilities above ground are vulnerable to air, surface, and subsurface bursts. Blast damage depends on such factors as dynamic pressure, terrain conditions, atmospheric conditions, nuclear burst yield, and height of burst. The greatest blast damage is delivered by a high-yield nuclear weapon detonated as an airburst.
- Thermal effects of nuclear explosions extend over a wide area. Heat from a nuclear explosion may cause flammable surfaces to ignite on contact.
- Neutron induced gamma activity (NIGA) may be detected in some equipment but the greater hazard is from NIGA in the surrounding terrain. Being hydrocarbons, POL products themselves remain unaffected by NIGA.
- Details pertaining to defense against nuclear attack are included in FM 21-40.

Fire Hazards

All petroleum products are fire hazards. There is relatively little hazard in a closed filled container except when the container is exposed to heat. However, there is a great hazard in a closed empty container containing vapors. Vapors expelled from a tank

prior to cleaning can be ignited easily, even at a considerable distance. When such vapors are ignited, flames can spread back to the point of origin and cause an explosion. Hazards exist in the possibility that vapors produced in making transfers, during use, or from spills or leaks maybe ignited. The best preventive measures are to control vapor formation and sources of ignition. A detailed discussion of these controls appears in FM 10-69.

Toxic Hazards

Toxic hazards are inherent in petroleum products. Because these hazards cannot be eliminated, personnel must be constantly aware of them and must use approved safeguards and prescribed procedures as a matter of habit. These hazards are discussed in detail in FM 10-69.

Section II

SECURITY, REAR AREA PROTECTION, AND DEMOLITION

Security

Security denotes all measures taken to protect supplies and equipment in transit and in storage against loss, damage, destruction, and compromise. Security means used include mechanical devices, active and passive defense measures, and preventive and corrective actions.

- Security is a command responsibility. The commander may give administrative and operational authority to a subordinate, usually referred to as the security officer. Provision has been made for such delegation within the petroleum group and petroleum pipeline and terminal operating battalions. Each of these activities contains a security officer as a part of its operations section.

- Security of supplies in transit, including railway security operations, ship and wharf security, truck and convoy security, and pipeline security are discussed in FMs 19-4 and 19-30. These publications also cover security of supplies in storage, including prevention of pilferage, personnel identification and control, and use of mechanical devices.

- Information about physical security of installations is contained in FM 19-30.

Rear Area Protection

The rear area battlefield is essentially void of combat forces but cluttered with support

units which are vulnerable targets for enemy forces operating in rear areas, particularly if they perform communications or nuclear related functions or operate radar and electronic warfare equipment. The more dispersion required for protection against nuclear attack, the more rear area units are subject to airborne, airmobile or ground attack. Consequently, to insure continuous support of the main battle effort, it is essential that combat and combat service support units be able to defend themselves against attempts to disrupt their operations until reinforcements arrive. Thus, rear area protection (RAP) operations must be an integral part of combat support and service support functions.

- Rear area protection operations may be defined as all actions taken to prevent or neutralize localized enemy threats to units, activities, and installations in the rear area. It includes area damage control (ADC) prevention and control measures which are taken before, during, and after an attack or natural disaster to minimize its effects. Together, these actions represent an added dimension to the responsibilities of theater army area command (TAACOM), corps support command (COSCOM), and division support command (DISCOM) commanders. Thus, combat service support units may have to be diverted temporarily from their primary

missions to rear area protection tasks such as local security, base defense, firefighting, decontamination, emergency medical treatment, and traffic control. The commander responsible for rear area protection operations determines the manner and extent to which these units will be diverted.

- The theater army commander has overall responsibility for RAP operations within the COMMZ. In the corps, the deputy corps commander is the RAP officer who directs the rear area battle. To assist these individuals in defining and assigning RAP responsibilities, a rear area operations center (RAOC) is assigned to each TAACOM, area support group, and corps. The RAOC's mission is to plan, coordinate, advise, monitor, and assist in directing the execution of the rear area battle. Petroleum units interface with the rear area operations center (RAOC).

- Rear area protection maybe divided into two phases--the preparation phase and the operational phase.

- The preparation phase includes preventive and readiness measures taken before an enemy attack. These operations range from the initial planning to the actual reconnaissance, surveillance, and counter-intelligence operations. Measures taken during this phase include establishing local security elements; organizing, equipping, and training units specifically designed for these missions; assigning area responsibilities; and establishing communications and warning systems. SOPs are written and rehearsed, and route patrolling and convoy escorting are carried out.

- The operational phase includes measures taken during or after an attack or a natural disaster. These actions begin when an incident occurs and include units sending reports to the commander concerned on the nature and extent of damage. These reports allow for necessary estimates and orders for establishing route clearances and redirecting supply flow. Thus, interruption of support to combat forces is reduced. Combat forces receive data in time to change priorities and tactical plans if needed. Fire prevention and

firefighting actions are conducted. Salvage and search and recovery operations begin on order. Traffic and personnel movement controls are established. If necessary, nuclear, biological, chemical (NBC) decontamination is begun. Emergency supplies are distributed, and communications are reestablished.

- The extent to which the petroleum group becomes involved in rear area protection is prescribed by higher authority. The group and its units stand ready to participate in these operations as directed. Consequently, the group security officer stays in close contact with the RAOC. The group security officer also supervises development of petroleum group rear area protection plans and procedures. He directs implementation of plans and procedures by subordinate elements. A detailed discussion of rear area protection is contained in FM 90-14.

Protection of Petroleum Supplies

Protective measures for petroleum supplies include special packaging, proper storage, dispersion of supplies and installations, protection against chemical contamination and nuclear fallout, and maximum use of natural and artificial protective shelters or other shielding devices. Every advantage is taken of natural cover and camouflage for pipelines located above ground. Underground pipelines are used whenever possible. Embankments and underground storage facilities can be effectively used to reduce blast damage. Dispersion of packaged supplies limits and keeps under control fires that start as a result of nuclear explosions. Care is taken to keep combustible materials to a minimum in and around petroleum supply installations.

Demolition

Demolition is a command responsibility. It is performed only as a last resort and only to prevent supplies and equipment from falling into enemy hands. Except in emergencies, demolition is performed only on orders from higher headquarters. General instructions on demolitions are contained in TM 5-343. Unless otherwise specified, petroleum stocks are destroyed by burning.